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**REMARKS**

Claims 1-12 have been canceled in favor of new claims 13-21. Accordingly, although traversed, the rejections against claims 1-3 are moot. Claim 13 is independent. It is respectfully submitted that claims 13-21 are patentable over the cited prior art.

Claim 13 recites in pertinent part, "a first DRAM section including a first memory cell having a first capacitance and a second DRAM section including a second memory cell having a second capacitance different from the first capacitance ... an operating voltage of the first DRAM section is different from an operating voltage of the second DRAM section." Support for claim 13 can be found, for example, in Figure 2 and the corresponding disclosure of Applicants' specification.

**A. Oowaki (USP 4,825,268)**

Turning to the cited prior art, Oowaki merely discloses two types of cell capacitors which are alternately arranged in the column direction. The adjacent memory cells are made mutually different in the amount of minority carriers injected from a semiconductor substrate into their storage nodes so as to reduce the soft error problem resulting from incidence of an  $\alpha$  ray. For example, as shown in Fig. 20, in the same DRAM section, the first and second cell capacitor regions 211, 212 are alternately arranged as a column of cell arrays selected according to the selection of a word line, e.g., W1. In other words, the semiconductor memory device disclosed by Oowaki uses two types of cell capacitors as a cell capacitor in DRAM sections having the *same* operating voltage; whereas the semiconductor memory device of the present invention can use memory cells having different capacitances in first and second DRAM sections having *different* operating voltages. In sum, Oowaki fails to disclose or suggest memory cells having different capacitances being used in two DRAM sections having different operating voltages.

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**B. Combination of Oowaki and Applicants' admitted prior art ("APA")**

The Examiner attempts to modify Oowaki with the teachings of APA. However, APA is directed to applying mutually different operating voltages to a *plurality* of DRAM sections mounted on the same semiconductor substrate. In this regard, APA is subject to a lowered operating speed and increased power consumption. Turning to Oowaki, the first and second cell capacitor regions 211, 212 are arranged in the *same* DRAM section. As such, if different operating voltages are applied to each region, normal operation can not be obtained. Moreover, as shown in Fig. 2 of Oowaki, because the first poly-Si film 15 serving as an upper electrode *is common to both regions*, it is impossible to apply different operating voltages thereto.

Oowaki and APA, alone or in combination, are silent as to suggesting the *combination* of a first DRAM section including a first memory cell having a first capacitance and a second DRAM section including a second memory cell having a second capacitance *different* from the first capacitance and an operating voltage of the first DRAM section being *different* from an operating voltage of the second DRAM section.

It is respectfully submitted that the Examiner's proposed combination is based solely on improper hindsight reasoning, whereby the Examiner selected bits and pieces of the cited prior art and used only Applicants' specification as a guide to reconstruct the claimed invention. Only Applicants' specification provides the requisite motivation/rationale for making the combination. Indeed, the Examiner's asserted motivation for making the combination is not attributed to any suggestion from the cited prior art and is instead, at best, derived exclusively from Applicants' specification. In this regard, APA is directed merely to applying different operating voltages to *plural* DRAM sections but is silent as to the asserted motivation relied on by the Examiner on page 4, lines 12+ of the outstanding Office Action, while Oowaki discloses only a first and second cell

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capacitor region 211, 212 being arranged in the *same* DRAM section so as to lead away from the claimed invention and asserted motivation.

It is respectfully submitted that the proposed combination is improper because the Examiner has not provided the requisite *objective* evidence *from the prior art* that "suggests the desirability" of the proposed combination. As is well known in patent law, a *prima facie* showing of obviousness can only be established if the prior art "suggests the desirability" of the proposed combination using objective evidence. The Examiner is directed to MPEP § 2143.01 under the subsection entitled "Fact that References Can Be Combined or Modified is Not Sufficient to Establish *Prima Facie* Obviousness", which sets forth the applicable standard:

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. (*In re Mills*, 16 USPQ2d 1430 (Fed. Cir. 1990)).

In the instant case, even assuming *arguendo* that Oowaki can be modified by APA, it is submitted that the "mere fact that [Oowaki and APA] can be combined ... does not render the resultant combination obvious" because nowhere does the prior art "suggest the desirability of the combination" as set forth by the Examiner.

As discussed above, at best, the cited prior art teaches away from the proposed combination in that it would be *inoperable* (i.e., differing operating voltages in the *same* DRAM section). In this regard, it is respectfully submitted that the proposed combination would render Oowaki inoperable for its intended purpose. The Examiner is directed to MPEP § 2143.01 under the sub-title "The Proposed Modification Cannot Render the Prior Art Unsatisfactory for its Intended Purpose", which sets forth the applicable standard:

If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. (citing *In re Gordon*, 221 USPQ 1125 (Fed. Cir. 1984)).

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Accordingly, pursuant to MPEP § 2143.01, "there is no suggestion or motivation to make the proposed combination."

The Examiner is further directed to MPEP § 2143.01 under the subsection entitled "Fact that the Claimed Invention is Within the Capabilities of One of Ordinary Skill in the Art is Not Sufficient by Itself to Establish *Prima Facie* Obviousness", which sets forth the applicable standard:

A statement that modifications of the prior art to meet the claimed invention would have been [obvious] because the references relied upon teach that all aspects of the claimed invention were *individually* known in the art is *not* sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. (citing *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993)).

In the instant case, even assuming *arguendo* that Oowaki and APA "teach that all aspects of the claimed invention [are] individually known in the art", it is submitted that such a conclusion "is not sufficient to establish a *prima facie* case of obviousness" because there is no *objective* reason on the record to combine the teachings of the cited prior art. In contrast, Oowaki and APA are completely silent as to suggesting the *combination* of a first DRAM section including a first memory cell having a first capacitance and a second DRAM section including a second memory cell having a second capacitance *different* from the first capacitance and an operating voltage of the first DRAM section being *different* from an operating voltage of the second DRAM section.

At best, the Examiner has attempted to show only that the elements (e.g., different capacitances and different operating voltages) of the claimed invention are *individually* known without providing a *prima facie* showing of obviousness that the *combination* of elements recited in the claims is known or suggested in the art. For all the foregoing reasons, it is submitted that the proposed combination of Oowaki and APA is improper.

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**C. Chang (USP 5,814,547)**

Chang merely discloses trenches having different depths and forming capacitors having different capacitances, but fails to disclose or suggest the particular application of the capacitors having different capacitances to a DRAM. That is, Chang fails to disclose or suggest memory cells having different capacitances in two DRAM sections having different operating voltages as can be done in the present invention.

**D. Chang and APA**

Chang, as mentioned above, fails to disclose any specific structure with regard to its application to a DRAM. Moreover, Chang expressly discloses the lower electrode of the capacitors 54, 55, 56 being common in the substrate 48 (*see* Fig. 11) so as to teach away from application of such capacitors to a DRAM (for reasons similar to Oowaki and APA, such a modification would be impossible and in fact Chang teaches away from such a combination).

As anticipation under 35 U.S.C. § 102 requires that each and every element of the claim be disclosed, either expressly or inherently (noting that "inherency may not be established by probabilities or possibilities", *Scaltech Inc. v. Relec/Tetra*, 178 F.3d 1378 (Fed. Cir. 1999)), in a single prior art reference, *Akzo N.V. v. U.S. Int'l Trade Commission*, 808 F.2d 1471 (Fed. Cir. 1986), based on the forgoing, it is submitted that the cited prior art does not anticipate claim 13, nor any claim dependent thereon.

The Examiner is directed to MPEP § 2143.03 under the section entitled "All Claim Limitations Must Be Taught or Suggested", which sets forth the applicable standard:

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. (citing *In re Royka*, 180 USPQ 580 (CCPA 1974)).

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In the instant case, the pending rejections do not "establish *prima facie* obviousness of [the] claimed invention" as recited in the claim 13 because the proposed combinations fail the "all the claim limitations" standard required under § 103.

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as claim 13 is patentable for the reasons set forth above, it is respectfully submitted that all claims dependent thereon are also patentable. In addition, it is respectfully submitted that the dependent claims are patentable based on their own merits by adding novel and non-obvious features to the combination.

Support for claim 14 can be found, for example, in original claim 2; for claim 15 on page 33, lines 12-16 and Figure 5; for claims 16-17 in Figure 2; for claim 18 on page 41, lines 9-12 and Figure 7; for claim 19 on page 21, lines 21-23 and Figure 1C; for claim 20 on page 23, line 25 – page 24, line 1; and for claim 21 on page 26, lines 12-18 and Figure 3B.

Based on the foregoing, it is respectfully submitted that all pending claims are patentable over the cited prior art. Accordingly, it is respectfully requested that the rejections under 35 U.S.C. § 102/103 be withdrawn.

### **CONCLUSION**

Having fully and completely responded to the Office Action, Applicants submit that all of the claims are now in condition for allowance, an indication of which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's

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amendment, the Examiner is requested to call Applicants' attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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